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Paul Reuben Day

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EXAMINER

ZHE, MENG YAO

ART UNIT

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2195

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/671,043	Applicant(s) DAY ET AL.	
	Examiner MENG YAO ZHE	Art Unit 2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42, 44 and 45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42, 44-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-42, 44-45 are presented for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 40-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to a signal directly. In that event, the claims are directed to a form of energy which at present the office feels does not fall into a category of invention. The following link on the World Wide Web is for the United States Patent And Trademark Office (USPTO) policy on 35 U.S.C. §101.

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 1-10, 14-22, 26-30, 32-38, 40-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Dageville et al., Patent No. 7,409,517 (hereafter Dageville).

6. Dageville was cited in the previous office action.

7. As per claims 1, 4, 14, 15, 26, 28, 32, 33, 40-42, Dageville teaches a method of performing a database query on a computer system, the method comprising:

Receiving a request for a temporary allocation of a system resource for a database query to be executed in the future, wherein the request is based upon a desired resource allocation determined in association with generating an access plan for the database query (Column 3, lines 28-31);

Dynamically and temporarily adjusting resource allocation in the computer system in response to receiving the request such that the database query is executed under the adjusted resource allocation (Column 16, lines 35-26, lines 55-65; Fig 3);

generating an access plan for the database query, including determining an adjustment to a resource allocation in the computer system that optimizes execution of the access plan (Abstract);

dynamically and temporarily applying the adjustment to the resource allocation in the computer system (Column 4, lines 30-45; Column 5, lines 20-28);

executing the access plan while the adjustment to the resource allocation in the computer system is applied (Column 2, lines 15-25; Column 3, lines 22-33).

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8. As per claims 3, 16, The method of claim 15, wherein the adjustment to the resource allocation in the computer system comprises allocation of an additional system resource selected from the group consisting of a memory resource, a processor resource, an input/output resource, a storage resource, and a machine resource (Column 3, lines 11-21).

9. As per claims 2, 17, 27, 34, Dageville teaches wherein generating the access plan is performed by a query optimizer, and wherein dynamically and temporarily applying the adjustment is performed by a performance adjuster that periodically adjusts resource allocation in the computer system (Column 3, lines 53-60).

10. As per claims 18, 35, Dageville teaches wherein generating the access plan further includes generating a request specifying the adjustment to the resource allocation, and wherein dynamically and temporarily applying the adjustment is performed responsive to the request (Abstract, lines 1-5).

11. As per claim 9-10, 19, 36, Dageville teaches wherein the database query is allocated to a memory pool in the computer system, wherein the request specifies at least one adjusted parameter for the memory pool, and wherein dynamically and temporarily applying the adjustment includes adjusting the memory pool based upon the

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specified at least one adjusted parameter (Column 3, lines 12-21; Column 4, lines 30-45).

12. As per claims 5, 20, 29, 37, Dageville teaches wherein the adjusted parameter specifies a reduction in maximum activity permitted in the memory pool, and wherein dynamically and temporarily applying the adjustment includes reducing maximum activity permitted in the memory pool to that specified in the request (Column 4, lines 35-45, lines 55-60).

13. As per claims 6, 21, Dageville teaches wherein the adjusted parameter specifies additional memory to be allocated to the memory pool, and wherein dynamically and temporarily applying the adjustment includes allocating the specified additional memory to the memory pool (Column 7, lines 40-53).

14. As per claim 22, 7-8, 30, 38, Dageville teaches wherein the request additionally specifies a duration, and wherein dynamically and temporarily applying the adjustment includes readjusting the memory pool after the specified duration (Column 6, lines 53-65).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 11-13, 23-25, 31, 39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dageville et al., Patent No. 7,409,517 (hereafter Dageville).

17. As per claims 11, 23, Dageville does not specifically teach determining whether to grant the request, wherein dynamically and temporarily applying the adjustment is performed only if a determination is made to grant the request.

However, since determining whether to grant a request is an essential step practiced in the field of request servicing for the purpose of rejecting unreasonable requests and allowing reasonable requests, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Dageville with determining whether to grant the request, wherein dynamically and temporarily applying the adjustment is performed only if a determination is made to grant the request.

18. As per claims 12, 13, 24, 25, 31, 39, Dageville teaches wherein the request additionally specifies a priority, and wherein determining whether to grant the request is based at least in part on the specified priority (Column 4, lines 35-40) and determining whether to grant the request is based upon at least one of a current system workload, available memory in the memory pool, a number of current jobs in the memory pool, a number of current threads in the memory pool, and a rate of change of activity in the memory pool (Column 5, lines 20-30).

19. Claims 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dageville et al., Patent No. 7,409,517 (hereafter Dageville) in view of Carino, Patent No. 6,353,818 (hereafter Carino).

20. As per claim 44, Dageville teaches calculating a desired resource allocation (Column 3, lines 29-30), and different estimation costs including a desired resource allocation and an estimated cost using current resource allocation (Column 4, lines 1-9, lines 15-16, lines 46-63).

Dageville does not specifically teach generating a plurality of potential access plans and selecting a first minimum cost access plan from among the plurality of potential access plans based upon the estimated costs using the desired resource

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allocations and a second plan based upon the estimated costs using the current resource allocation.

However, Carino teaches generating a plurality of potential access plans; selecting different minimum cost access plan from the plurality of potential access plans based on different metrics for the purpose of having different choices based on different metrics (Column 8, line 53-Column 9, line 15).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Dageville with generating a plurality of potential access plans; selecting different minimum cost access plan from the plurality of potential access plans based on different metrics, as taught by Carino, such that two different plans are selected based on costs using the desired resource allocation and costs using the current resource allocation, because it allows for different alternatives depending on the execution environment.

21. As per claim 45, Carion does not specifically teach calculating a cost difference between the first and second minimum cost access plans and selecting the first minimum cost access plan for execution in response to the cost difference exceeding a threshold.

However, it would have been obvious to one having ordinary skill in the art of plan selection to select the plan that costs less than an acceptable rate, which corresponds to the threshold, as this method is commonly practiced to select an optimal plan when two plans are in question.

Response to Arguments

22. Applicant's arguments filed on 12/4/2008 have been fully considered but are not persuasive.

23. In the remark, the applicant argued that:

i) Claim 1: Dageville's invention does not operate responsive to a query-specific request to temporarily adjust resource allocation based upon a desired resource allocation determined in association with the generation of an access plan for a query.

ii) Claim 1: Dageville discloses an adaptive system that is based on the overall state of the system rather than on particular requests for particular database queries.

iii) Claim 15: Dageville does not teach an access plan for the database query.

iv) Claims 7-9, 22, 30, 38: Dageville does not teach a request specifying a duration wherein resources are adjusted after the specified duration.

v) Claim 10: Dageville does not teach adjusting resource allocation upon completion of the query.

24. The Examiner respectfully disagree with the applicant. As to point:

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- i) Dageville teaches an application comprising many processes, each process responsible for executing a query using different operators (Fig 2, unit in the lower right hand corner: query A contains two different operators, which is being executed by a process). To execute a query, each operator of the query has its own resource needs (Column 3, lines 28-31). The system of Dageville varies the amount of memory a process receives according to the operator needs for each query, which varies from query to query, depending on the type of operator involved (Column 16, lines 35-26, lines 55-65; Fig 3). Although Dageville does not use the word "request", each query with its unique set of operator defines a request. Since each operator has its own needs, the resource bound for the entire process is different, and the actual resource allocated is determined from the varying bound of the queries (Column 3, lines 60-67; Fig 1B: unit 121). The memory bound may correspond to the desired resources claimed by the applicant.
- ii) Depending on different needs of operators for a query, the amount of memory a process receives is different (Column 4, lines 30-40; lines 46-67; also see explanation above).
- iii) The plan generated by the system of Dageville is the amount of memory a process is to receive based on a query need (Column 2, lines 26-34; Column 3, lines 55-67).

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iv) Column 4, lines 54-60 of Dageville further teaches that each operator's need or request includes the time required to execute the query. Since resource allocation is adjusted based on memory usage statistics, as soon as the specified time ends for the execution of the operator, the memory for the process executing the operator is deallocated (Fig 1B, unit 123), memory usage statistics is updated (Fig 1B, unit 124), and adjustment of resource is evaluated (Fig 1B, UNIT 126).

v) Since upon completion of a query, memory for that process is deallocated, memory usage statistics is updated, and adjustment of resources follows (Fig 1B, units 123, 124, 126; Column 7, lines 5-11; Column 8, lines 40-46).

Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MENGYAO ZHE whose telephone number is (571)272-6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195